Bowling!

Individual Project

Implement bowling three different ways.

Keys to success and general requirements:

1. Make sure you understand the rules of bowling scoring. Especially note the scoring rules for the final frame.
2. The input is contained in various files. DO NOT hard code the file name in your program. Make the file name a command-line argument.
3. The format of the input file is numbers (integers) separated by white space. The white space may be spaces, tabs, or new lines. A frame is not necessarily on a single line. (This is trivial in C++, not so much in other languages.)
4. Most frames are two balls (numbers), but if you roll a strike on the first ball, you don't roll another ball in that frame. Your program has to figure this out. Note also there may be extra bonus rolls at the end of a game (see bowling rules for details.)
5. Each file will have exactly enough rolls for a complete game.
6. The input file will not have errors.

Write THREE different programs to calculate bowling scores (it's a pretty small program.) Write in three different styles/patterns, in the following order:

1. Procedural
2. Object-Oriented: use at least one instance of inheritance
3. Pipes and Filters: write at least two separate programs that each do a part of the score calculation, and then are piped together using the "|" operator (in Windows or Linux). Each filter must do something reasonable (though it might be pretty small.) Therefore, the first filter creates some sort of partial solution that the second filter reads to create the final solution. (If you want, you can have more than two filters.)

Write five paragraphs:

- For each program, describe how well it fits the problem and what makes it fit well or not fit well.
- A summary which explains which is the best fit for the problem and why.
- A summary paragraph which explains what you learned about software architecture through this exercise.

Turn in:

1. The source code for each.
2. Evidence that each program runs correctly.
3. The writing assignment as described above.